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TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>	Application Number	10/563,656	
	Filing Date	June 22, 2006	
	First Named Inventor	J. Christopher Anderson	
	Group Art Unit	1656	
	Examiner Name	Unassigned	
Total Number of Pages in This Submission		Attorney Docket Number	54A-000510US

ENCLOSURES (check all that apply)		
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	Edward J. DesJardins, Ph.D., Reg. No. 51,162, Quine Intellectual Property Law Group, P.C.
Signature	
Date	August 24, 2007

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Signature	Kimberly Cheung	Date	August 24, 2007



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QUINE INTELLECTUAL PROPERTY LAW GROUP, P.C.

By

Kimberly Cheung
Kimberly Cheung

Attorney Docket No. 54A-000510US
TSRI Ref. No. 1002.1 US / AMB0100P
Ambrx Ref. No. 0072.00US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

J. Christopher Anderson, et al.

Application No.: 10/563,656

Filed: June 22, 2006

For: Compositions of orthogonal glutamyl-trna and aminoacyl-trna synthetase pairs and uses thereof

Confirmation No. 3238

Examiner: Unassigned

Art Unit: 1656

INFORMATION DISCLOSURE
STATEMENT UNDER 37 CFR § 1.97 and
§ 1.98

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Sir:

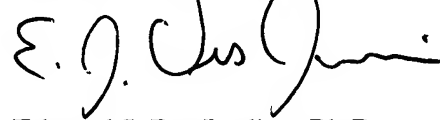
The references cited on attached form PTO-1449 are being called to the attention of the Examiner. Copies of the references are enclosed. Copies of the cited US Patent applications have not been enclosed because they are no longer required by the office for submission. It is respectfully requested that the cited information be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR 1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no

representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

Applicant believes that no fee is required for submission of this statement, since it is being submitted prior to the first Office Action on the merits per 37 CFR 1.97(b)(3). However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 50-0893. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "E. J. DesJardins", written over the typed name.

Edward J. DesJardins, Ph.D.
Reg. No. 51,162

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Substitute for form 1449A-B/PTO

Complete if Known

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)

Application Number	10/563,656
Filing Date	June 22, 2006
First Named Inventor	J. Christopher Anderson
Group Art Unit	1656
Examiner Name	Unassigned
Attorney Docket Number	54A-000510US
Date Submitted	August 24, 2007

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code (if known)			
	1	6,927,042	B2	Schultz et al.	08-09-2005	
	2	7,045,337	B2	Schultz et al.	05-16-2006	
	3	7,083,970	B2	Schultz et al.	08-01-2006	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				
	4	WO	2002/085923	A2	The Scripps Research Institute	10-31-2002		
	5	WO	2002/086075	A2	The Scripps Research Institute	10-31-2002		
	6	WO	2004/035605	A2	The Scripps Research Institute	04-29-2004		
	7	WO	2004/035743	A2	The Scripps Research Institute	04-29-2004		
	8	WO	2004/094593	A2	The Scripps Research Institute	11-04-2004		
	9	WO	2005/003294	A2	The Scripps Research Institute	01-13-2005		

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T
	10	ANDERSON (August 2003) "Pathway engineering of the expanding genetic code." Thesis presented for the degree of Doctor of Philosophy in Chemistry, The Scripps Research Institute, La Jolla, CA. Call Number QD1000. A63 (2003); UMI Publication No. 3111397.	
	11	ANDERSON AND SCHULTZ (2003) "Adaptation of an Orthogonal Archaeal Leucyl-tRNA and Synthetase Pair for Four-base, Amber, and Opal Suppression." <i>Biochemistry</i> , 42(32): 9598-9608.	
	12	ANDERSON ET AL. (2002) "Exploring the limits of codon and anticodon size." <i>Chemistry & Biology</i> , 9: 237-244.	
	13	ANDERSON ET AL. (May 18, 2004) "An expanded genetic code with a functional quadruplet codon." <i>Proceedings of the National Academy of Sciences, USA</i> , 101(20): 7566-7571.	
Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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	14	BOSSI AND ROTH (1981) "Four-base codons ACCA, ACCU and ACCC are recognized by frameshift suppressor sufJ." <i>Cell</i> , 25(2): 489-496.	
	15	CHEN ET AL. (1994) "Properties of the lysyl-tRNA synthetase gene and product from the extreme thermophile <i>Thermus thermophilus</i> ." <i>Journal of Bacteriology</i> , 176(9): 2699-2705.	
	16	CHIN ET AL. (2003) "An expanded eukaryotic genetic code." <i>Science</i> . 301: 964-967.	
	17	CHIN ET AL. (2002) "Addition of a photocrosslinking amino acid to the genetic code of <i>Escherichia coli</i> ," <i>Proc. Natl. Acad. Sci. U. S. A.</i> 99(17):11020-11024.	
	18	CHIN ET AL. (2002) "Addition of p-azido-L-phenylalanine to the genetic code of <i>Escherichia coli</i> ," <i>J. Am. Chem. Soc.</i> 124(31):9026-9027.	
	19	CURRAN AND YARUS (1987) "Reading frame selection and transfer RNA anticodon loop stacking." <i>Science</i> , 238: 1545-1550.	
	20	EDWARDS AND SCHIMMEL. (1990) "A bacterial amber suppressor in <i>Saccharomyces cerevisiae</i> is selectively recognized by a bacterial aminoacyl-tRNA synthetase," <i>Mol. Cell. Biol.</i> 10(4):1633-1641.	
	21	FENG ET AL. (2003) "Expanding tRNA recognition of a tRNA synthetase by a single amino acid change." <i>Proceedings of the National Academy of Sciences USA</i> , 100(10): 5676-5681.	
	22	FORSTER ET AL. (2003) "Programming peptidomimetic synthetases by translating genetic codes designed <i>de novo</i> ." <i>Proceedings of the National Academy of Sciences USA</i> , 100(11): 6353-6357.	
	23	HIRAO ET AL. (2002) "An unnatural base pair for incorporating amino acid analogues into protein," <i>Nature Biotechnology</i> , 20:177-182.	
	24	HOHSAKA AND SISIDO (2002) "Incorporation of non-natural amino acids into proteins." <i>Current Opinion in Chemical Biology</i> , 6: 809-815.	
	25	HOHSAKA ET AL. (2001) "Five-base codons for incorporation of nonnatural amino acids into proteins." <i>Nucleic Acids Research</i> , 29(17): 3646-3651.	
	26	HOHSAKA ET AL. (1999) "Incorporation of Two Different Nonnatural Amino Acids Independently into a Single Protein through Extension of the Genetic Code," <i>J. Am. Chem. Soc.</i> , 121(51):12194-12195.	
	27	HOHSAKA ET AL. (1999) "Efficient Incorporation of Nonnatural Amino Acids with Large Aromatic Groups into Streptavidin in In Vitro Protein Synthesizing Systems," <i>J. Am. Chem. Soc.</i> , 121(1):34-40.	
	28	HOU ET AL. (1992) "Novel transfer RNAs that are active in <i>Escherichia coli</i> ." <i>Biochemistry</i> , 31(17): 4157-4160.	
	29	KOBAYAYASHI ET AL. (2003) "Structural basis for orthogonal tRNA specific of tyrosyl-tRNA synthetases for genetic code expansion." <i>Nature Structural Biology</i> , 10(6): 425-432.	
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	30	KOWAL AND OLIVER (1997) "Exploiting unassigned codons in <i>Micrococcus luteus</i> for tRNA-based amino acid mutagenesis," <i>Nucl. Acid. Res.</i> , 25(22):4685 -4689.	
	31	KWOK AND WONG (1980) "Evolutionary relationship between <i>Halobacterium cutirubrum</i> and eukaryotes determined by use of aminoacyl-tRNA synthetases as phylogenetic probes," <i>Can. J. Biochem.</i> 58(3):213-218.	
	32	LIU AND SCHULTZ (1999) "Progress toward the evolution of an organism with an expanded genetic code." <i>Proceedings of the National Academy of Sciences USA</i> , 96: 4780-4758.	
	33	MA ET AL. (1993) "In vitro protein engineering using synthetic tRNA(Ala) with different anticodons" <i>Biochemistry</i> , 32(31):7939-7945.	
	34	MAGLIERI ET AL. (2001) "Expanding the genetic code: selection of efficient suppressors of four-base codons and identification of "shifty" four-base codons with a library approach in <i>Escherichia coli</i> ." <i>Journal of Molecular Biology</i> , 307: 755-769.	
	35	MOORE ET AL. (2000) "Quadruplet codons: implications for code expansion and the specification of translation step size," <i>J. Mol. Biol.</i> , 298(2):195-209.	
	36	NUREKI ET AL. (1995) "Architectures of class-defining and specific domains of glutamyl-tRNA synthetase," <i>Science</i> 267: 1958-1965.	
	37	O'CONNOR (2002) "Insertions in the anticodon loop of tRNA(1)(Gln)(sufG) and tRNA(Lys) promote quadruplet decoding of CAAA." <i>Nucleic Acids Research</i> , 30(9): 1985-1990.	
	38	OHNO ET AL. (1998) "Co-Expression of Yeast Amber Suppressor tRNA ^{tr} and Synthetase in <i>Escherichia coli</i> : Possibility to Expand the Genetic Code." <i>J. Biochem</i> 124(6):1065-1068.	
	39	PASTRNAK ET AL. (2000) "A New Orthogonal Suppressor tRNA/Aminoacyl-tRNA Synthetase Pair for Evolving an Organism with an Expanded Genetic Code," <i>Helv. Chim. Acta</i> 83:2277-2286.	
	40	RATH ET AL. (1998) "How glutamyl-tRNA synthetase selects glutamine," <i>Structure</i> , 6(4):439-449.	
	41	SAKAMOTO ET AL. (2002) "Site-specific incorporation of an unnatural amino acid into proteins in mammalian cells," <i>Nucleic Acids Res.</i> 30(21):4692-4699.	
	42	SANTORO ET AL. (2002) "An efficient system for the evolution of aminoacyl-tRNA synthetase specificity." <i>Nature Biotechnology</i> , 20:1044-1048.	
	43	SEKINE ET AL. (2001) "Structural basis for anticodon recognition by discriminating glutamyl-tRNA synthetase," <i>Nat. Struct. Biol.</i> , 8(3):203-206.	
	44	TUMBULA ET AL. (2000) "Domain-specific recruitment of amide amino acids for protein synthesis," <i>Nature</i> , 407(6800):106-110.	

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45	WANG ET AL. (2000) "A New Functional Suppressor tRNA/Aminoacyl-tRNA Synthetase Pair for the in Vivo Incorporation of Unnatural Amino Acids into Proteins." <i>Journal of the American Chemistry Society</i> , 122: 5010-5011.	
46	WANG ET AL. (2001) "Expanding the Genetic Code of Escherichia coli." <i>Science</i> , 292: 498-500.	
47	WANG ET AL. (2003) "Addition of the Keto Functional Group to the Genetic Code of Escherichia coli," <i>PNAS</i> , 100(1):56-61.	
48	WU ET AL. (2002) "Enzymatic phosphorylation of unnatural nucleosides," <i>J. Am. Chem. Soc.</i> , 124(49):14626-14630.	
49	YARUS ET AL. (1986) "Actions of the anticodon arm in translation on the phenotypes of RNA mutants." <i>Journal of Molecular Biology</i> , 192(2): 235-255.	

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